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# MSAPC ADVISORY CIRCULAR

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF AIR AND WASTE MANAGEMENT ●

MOBILE SOURCE AIR POLLUTION CONTROL

A/C NO. 59

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Subject: Determination of Evaporative Emission Families and  
Evaporative Emission Control Systems

A. Purpose

The purpose of this Advisory Circular is to describe how evaporative emission families and evaporative emission control systems will be determined.

B. Background

1. On August 12, 1976, EPA promulgated evaporative emission regulations which replaced the "carbon-trap" test procedure with the SHED test procedure and added the evaporative emission family and evaporative emission control system concepts to the certification scheme. (See 41 FR 35626, August 23, 1976.)

2. Manufacturer's comments to the Evaporative Emission Notice of Proposed Rulemaking requested clarification of the evaporative emission family and evaporative emission control system parameters. However, many manufacturers suggested that these details be provided through the MSAPC Advisory Circular system and that the regulations provide only general parameters so as to retain maximum flexibility to revise the parameters in light of future technological developments. The method suggested is similar to that used to describe exhaust emission control system and engine family parameters (Advisory Circular No. 20-B).

3. This Advisory Circular provides guidance as to which vehicle parameters serve as the basis for defining different evaporative emission families and evaporative emission control systems. The classification of vehicles by evaporative emission family and evaporative emission control system serves as the basis for selecting vehicles for testing.

C. Applicability

The provisions of this Advisory Circular are effective immediately and are applicable beginning with the 1978 model year for all gasoline-fueled light-duty vehicles and all gasoline-fueled light duty trucks.

D. Evaporative Emission Family Determination

1. Vehicles will be classified in the same evaporative emission family, if they are identical in all of the following respects:

a. Vapor storage device (e.g., canister, crankcase, air cleaner).

b. Basic canister design.

(1) Working capacity--grams adsorption.

(2) Housing material (e.g., plastic, steel).

(3) Configuration (e.g., closed bottom, open bottom, vent mechanism, purge control).

c. Fuel system

(1) If carburetion is used, the number of carburetors, number of venturis, principle of operation, bowl volume, bowl location, vent configuration, accelerator pump configuration.

(2) If fuel injection is used, the type (mechanical or electronic) and the flow pattern (continuous or timed).

(3) Fuel tank material (e.g., plastic, steel), liner configuration, vapor control baffle configuration.

2. Vehicles identical in all the respects listed in D.1 above may be further grouped into different evaporative emission families in accordance with the provisions of 40 CFR 86.078-24(a)(7).

3. Vehicles which differ in the parameters listed in D.1 above may be judged by EPA to be essentially equivalent (i.e., belonging to the same evaporative emission family) based on a review of data submitted to EPA by the manufacturer in support of a claim of vehicle equivalency.

E. Evaporative Emission Control System Determination

1. Vehicles will be classified as having the same evaporative emission control system, if they are identical in all of the following respects:

a. Vapor transmission to the storage device -- controlled, or not controlled -- and, if controlled, method of control.

b. Canister adsorption material--carbon or synthetic.

c. Purge technique

(1) Controlled or not controlled and, if controlled, method of control.

*HDV'S*

*a. carburetor vs. fuel injection  
b. carburetor bowl volume within 10 cc range*

*HDV'S*

*a. method of vapor storage*

*b. method carb sealing*

*c. "air cleaner"*

*d. Vapor storage within capacity*

*e. No. storage devices*

*f. method of purging  
g. within 10 cc range*

- (2) Point of induction (e.g., PCV, air cleaner, carburetor).
- (3) Conditioning of purge air (e.g., heated, dried).
- d. Fuel system environment control (e.g., thermostatically controlled, forced cooling of the fuel system).
- e. Fuel filler cap
  - (1) Sealing mechanism.
  - (2) Retention mechanism.

2. Vehicles which differ in the parameters listed in E.1 above may be judged by EPA to be essentially equivalent (i.e., classified as having the same evaporative emission control system) based on a review of data submitted to EPA by the manufacturer in support of a claim of vehicle equivalency.

3. EPA expects that new devices and control techniques will be developed and utilized as the state of evaporative emission control technology advances. These new approaches to evaporative emission control may necessitate revisions or additions to the parameters in E.1 and such revisions will be made as required.

for Mobile Source Air Pollution Control